HEPATITIS B (Serum Hepatitis, hep b)

What is hepatitis B?

Hepatitis B is a disease caused by the hepatitis B virus which infects the liver. Formerly, hepatitis B was called serum hepatitis. In children, the disease may be mild, but adults can have more severe illness that may cause death. Long-term infection can occur and may result in liver disease or cancer.

Who gets hepatitis B?

Anyone can get hepatitis B. However, certain groups have a greater chance of becoming infected; these include infants born to infected mothers, IV drug users, sexual partners of infected people, people with many homosexual or bisexual partners, certain populations with high rates of hepatitis B infection, health care and public safety workers, and anyone who has frequent contact with blood. Clients and staff of institutions for the mentally retarded, and housemates of chronically infected people are at higher risk than the general population, but lower risk than those listed above.

How is the virus spread?

The hepatitis B virus is usually spread through sexual activity or contaminated blood. It can also be spread through close household contact and from infected mothers to their infants at birth.

What are the symptoms?

Symptoms include loss of appetite, stomach pain, nausea, vomiting, sometimes skin rashes, joint pains and jaundice (yellowing of the skin and the whites of the eyes).

How soon do the symptoms appear?

Symptoms develop slowly and may appear as long as 45-180 days (average is 60-90 days) after exposure to an infected person.

How long can an infected person spread the virus?

An infected person can spread the virus for several weeks before symptoms appear and as long as the person is ill. Persons who develop lifelong infection ("carriers"), may spread the virus for their entire lives. Long term infection may result in liver disease or cancer.

How is hepatitis B diagnosed?

A blood test is used to detect infection with the hepatitis B virus.

Can a person get hepatitis B again?

If a person develops hepatitis B antibodies, one infection with the hepatitis B virus protects them from getting it again. However, there are different types of viral hepatitis, and infection with hepatitis B will not protect against other types of hepatitis.

What is the treatment for hepatitis B?

There is no specific treatment for acute hepatitis B.

What can be done if a person is exposed to someone infected with hepatitis B?

When indicated, hepatitis B immune globulin (HBIG) should be given as soon after exposure as possible. Hepatitis B vaccine is also recommended for people at high risk of additional exposure. For infants born to infected mothers, the combination of HBIG and vaccine is effective at preventing infection.

How can the spread of hepatitis B be stopped

Vaccination is highly protective against the hepatitis B virus. Testing all pregnant women for HBsAg is recommended to prevent spread from infected mothers to their infants. Donated blood should be tested for HBsAg, and individuals who test positive should be rejected as donors. Syringes, acupuncture and tattooing needles should never be reused.

Is there a vaccine to prevent hepatitis B?

A vaccine is available for persons at high risk of being infected with hepatitis B. The vaccine is safe for most people and the most common complaint is soreness at the injection site. People who receive the vaccine as a precautionary measure may continue to donate blood.

Where can I get more information?

- Your personal doctor
- Your local health department, listed in your telephone directory
- The Utah Department of Health, Bureau of Epidemiology (801) 538-6191

HEPATITIS C (hep C, non-A non-B hepatitis)

What is hepatitis C?

Hepatitis C is a disease caused by the hepatitis C virus which results in infection of the liver. Hepatitis C is the most common (but not the only) cause of post-transfusion hepatitis in the United States.

Who gets hepatitis C?

Anyone can get hepatitis C, but IV drug users, transfusion recipients, and dialysis patients are at high risk of getting the infection. Health care workers who have frequent contact with blood have also been shown to be at risk.

How is the virus spread?

The hepatitis C virus is spread by contact with contaminated blood or plasma. Contaminated needles and syringes are a source of spread among IV drug users. The role of person-to-person contact and sexual activity in the spread of this disease is unclear. While spread may occur by these routes, it is less frequent than with the hepatitis B virus.

What are the symptoms?

Symptoms develop slowly and may include loss of appetite, stomach pain, nausea, vomiting. Jaundice (yellowing of the skin or whites of the eyes) does not occur as commonly with hepatitis C as it does with hepatitis B. The severity of the illness can range from no symptoms to fatal cases (rare). Long-term infection is common. Liver disease may result from long-term infection, but the illness more often improves after two to three years. People who have a long term infection may or may not have symptoms. People who do not have symptoms can spread disease.

How soon do the symptoms appear?

Symptoms commonly appear within six to nine weeks. However, they can occur as soon as two weeks and as long as six months after infection.

How long can an infected person spread the virus?

Infected people can spread the virus for one or more weeks before the first symptoms appear and for as long as they are ill. People who become carriers can spread the virus for a long time.

How is hepatitis C diagnosed?

A blood test can screen hepatitis C antibodies only, but other viruses or chemicals that cause hepatitis should also be ruled out.

How good is the blood test?

The present hepatitis C test is only a screening test and cannot be used to accurately diagnose hepatitis C. This test is of little use for determining whether acute hepatitis is due to the hepatitis C virus. A better test may become available in the future.

How can hepatitis C be prevented?

Syringes, tattooing, and acupuncture needles should not be reused. Control measures against hepatitis B infection also apply. Blood banks should properly discard units of blood that are positive for the hepatitis C virus.

Where can I get more information?

- Your personal doctor
- Your local health department, listed in the telephone directory
- The Utah Department of Health, Bureau of Epidemiology (801) 538-6191

Human Immunodeficiency Virus/AIDS

What is Acquired Immunodeficiency Syndrome?

AIDS is the end stage of HIV infection/disease. HIV disease starts with infection with the Human Immunodeficiency Virus (HIV) and usually progresses through a diagnosis of AIDS. There is an average seven to sixteen year latency period before symptoms appear that are indicative of an AIDS case diagnosis.

Who gets HIV/AIDS?

Anyone who participates in behaviors that are known to transmit HIV can become infected. HIV is a bloodborne, sexually transmitted virus that does not discriminate against a potential host.

How is the virus transmitted?

HIV is transmitted three basic ways: 1) through sexual contact, including anal, vaginal, oral intercourse; 2) through blood-to-blood contact, including sharing needles (used for injecting illicit drugs, steroids, tattoos, and ear/body piercing), reuse of medical instruments before proper sterilization, and blood brother/sister rituals; and 3) HIV can be transmitted from an HIV positive mother to her child during pregnancy, through birth, or by breastfeeding. Blood transfusions were also a means of transmission before 1985, however, since the blood supply is now tested for HIV and other bloodborne pathogens, the chance of getting HIV through a blood transfusion is extremely rare (1/225,000).

What are the symptoms?

Since HIV has a very long latency period (7 to 16 years average), symptoms of HIV disease will usually only be recognized when the immune system is suppressed to the point that opportunistic infections appear. However, some symptoms that are common to HIV/AIDS patients prior to an AIDS diagnosis include: night sweats, unexplained fever, chronic fatigue, anorexia, and weight loss.

AIDS defining opportunistic infections include: Pneumocystis carinii pneumonia, chronic cryptosporidiosis, toxoplasmosis of the central nervous system, esophageal or lower respiratory tract candidiasis, disseminated or central nervous system cryptococcosis, disseminated atypical mycobacteriosis, pulmonary or gastrointestinal or central nervous system or ocular cytomegalovirus infection, chronic ulcerative mucocutaneous or disseminated herpes simplex infection and progressive multifocal leukoencephalopathy; cancers include: Kaposi's sarcoma, primary B-cell lymphoma, limited to the brain and non-hodgkin's lymphoma. Also wasting syndrome, pulmonary and extrapulmonary tuberculosis, neurologic disease such as HIV dementia or sensory neuropathy.

How soon do the symptoms appear from when you were exposed to the disease?

The latency period can last from seven to sixteen years on the average, perhaps longer. The individual infected with HIV can take positive steps to prolong the latency period. Those individuals who do not protect their health usually progress much more quickly to developing AIDS.

How long can an infected person spread the virus?

Once an individual is infected with HIV, they are infected for life. The can also transmit the virus to others throughout their lifetime, although they may be more infectious during the window period (six to twelve weeks after infection) and full blown AIDS.

How does a person find out if they are infected with HIV?

Because the blood test for HIV is an antibody test rather than a viral test, the person should wait at least three months after participating in a risky behavior before having a blood test. This is to ensure that the body has had enough time to develop a sufficient antibody level to show up on the test. If the person has a negative test, but continues to participate in risky behaviors, they should be tested again in another three months.

What should a person do if they are infected with HIV?

People who are infected with HIV should take care of their health. Establishing positive support systems is also very important. Annual physicals should be complete and include tuberculosis testing. Available drug treatments should be pursued and competent medical advice is imperative. People with HIV infection should also inform their health-care providers of their condition and also inform others who may be at risk of getting the infection from them (i.e., sexual partners, drug-sharing partners).

Is there a vaccine to prevent HIV infection?

Presently there is no vaccine or cure for AIDS. Many competent researchers are working on a vaccine and a cure. The only sure way to prevent infection is to abstain from sexual intercourse and sharing needles or any part of injecting drug works.

Where can I get more information?

Utah Department of Health, Bureau of HIV/AIDS	(801) 538-6096
Utah AIDS Information and Referral Line	in Salt Lake 538-6094
	others in Utah 1 (800) 537-1046
Utah AIDS Foundation	in Salt Lake 487-2323
	others in Utah 1 (800) FON-AIDS
National AIDS Hotline	1 (800) 342-AIDS
	Spanish 1 (800) 344-SIDA
	Native American 1 (800) 283-AIDS
	Deaf Access 1 (800) AIDS-TTY

INFLUENZA ("Flu")

What is influenza?

Influenza (flu) is a very contagious viral infection of the respiratory system. Symptoms of influenza include fever, muscle aches, headache, congestion, runny nose, cough, sore throat, and general weakness. These symptoms usually appear one to three days after a person has been exposed to the virus.

How is influenza transmitted?

The influenza virus is spread when an infected person coughs or sneezes and sprays droplets which can be inhaled by people nearby.

How many types of influenza are there?

Many different types or strains of influenza virus have been identified. These types usually fall into two major groups (A or B), and are named for the place where they were first isolated. For example, A/Hong Kong is a group A virus that was first isolated in influenza cases from Hong Kong. Because the genes of influenza viruses change, new strains of the virus appear each year.

Can influenza be dangerous?

The symptoms of influenza range from mild to severe. Although most people recover from the disease within a week, some may have life-threatening complications such as pneumonia. People age 65 and older, people with weakened immune systems, and people with chronic medical problems such as heart disease, asthma, diabetes, or lung or kidney disease are at high risk of developing complications from influenza. Children on long-term treatment with aspirin may be at risk of developing a dangerous metabolic disorder called Reye's Syndrome if they contract influenza.

How is influenza treated?

Type A is sometimes treated with a drug called amantadine or rimantadine. Although no specific treatment for influenza B exists, bed rest, fluids, non-prescription pain relievers, and nasal decongestants can help to reduce a person's discomfort. Children and teenagers with influenza should not take aspirin or aspirin containing products, since aspirin use under such conditions has been linked with Reye's Syndrome.

How can influenza be prevented?

The best means of preventing influenza is by immunization. Because the viruses that cause influenza change often, an influenza vaccination should be received every year. Annual vaccination is especially important for people at high risk of developing complications from influenza and for family members and health care providers of people at high risk.

Type A influenza infections may be prevented by prescribed drugs (amantadine or rimantadine). However, the need for many doses each day and the chance of side effects limits this option to high-risk persons who have not been immunized.

How safe is the vaccine?

As with most drugs or vaccines, there is a chance some people will have allergic or more serious reactions to the influenza vaccine. However, the current influenza vaccines are safe and only have mild side effects. A few people have minor reactions such as a sore arm for two to four days, or low grade fever, chills, headache or muscle aches during the first 48 hours after vaccination. Because the vaccine is made with dead viruses, it does not cause influenza. Unlike the 1976 swine flu vaccine, recent influenza vaccines have <u>not</u> been associated with Guillain-Barre Syndrome, a rare neurological disorder.

Who should not be vaccinated?

The following groups of people should ask a physician before receiving the vaccine:

- People who are allergic to eggs;

- Children who have received DTP vaccine within the previous 3 days;

- People who are ill and have a fever.

Where can I get more information?

- Your personal physician
- Your local health department, listed in your telephone directory
- The Utah Department of Health, Bureau of Epidemiology, (801) 538-6191.

Methicillin Resistant *Staphylococcus aureus* (MRSA)

What is MRSA?

MRSA stands for methicillin resistant *Staphylococcus aureus*. It is a bacterium that has developed a resistance to most antibiotics commonly used for staphylococcus infections. These drugs include methicillin, oxacillin, nafcillin, cephalosporins, imipenem, and other beta-lactams. *S. aureus* is a coagulase-positive organism that forms a part of the flora on many people.

What is the reservoir for MRSA?

MRSA can affect people in two different ways—colonization or infection. When a person carries the flora on the skin, mucous membranes, or in the nose without showing signs or symptoms of infection, the person is said to be **colonized**. Colonization may be transient ($\leq$24 hours) or may last several months. If a person has signs of infection that are caused by MRSA (e.g., abscesses, wound infections, pneumonia, respiratory infections, blood, stool or urinary tract infections), the person is said to be **infected**. In the health care setting, colonized and infected patients serve as the major reservoir of MRSA. Colonized medical personnel may also serve as a reservoir for the organism. The major site of colonization for all strains of *S. aureus* is the anterior nares where 30 - 40% of the general population may carry the organism.

How does MRSA spread from person to person?

MRSA most often spreads from person to person by **direct** contact. For example, in medical settings MRSA is most commonly spread from patient to patient by health care workers' hands.

How can you stop the spread of MRSA?

The **single most effective way to prevent the spread of infection is by proper handwashing.** Handwashing, by lathering up with soap for at least 15-20 seconds and rinsing with warm running water, is the key to preventing the spread. Hands should be washed both before and after contact with a patient. Other measures include following Standard Precautions which requires the use of protective equipment to avoid contact with another person's body fluids. Additionally, protective equipment should be disposed of properly after use, and hands must be washed after removing the protective equipment. Clean (un-used) and dirty linens should be kept separated. Follow a schedule for daily environmental cleaning. Observe the isolation procedures of your facility.

Is MRSA more of a concern than other infections?

The answer is both yes and no. MRSA is not a "super bug" and is no more virulent than *Staphylococcus aureus*. However, all infections are of concern to health care workers and patients. MRSA is of particular importance because infections caused by MRSA are very difficult to treat. Typically, MRSA infections are treated intravenously with a drug called vancomycin. The side effects of this drug may be quite severe, particularly in elderly or immunodeficient patients. Additionally, patients with invasive devices such as catheters, nasogastric or gastrostomic tubes, or with intravenous lines are much more likely to acquire infections, including MRSA.

Should MRSA colonization be treated?

Decolonization is a controversial issue. Treatment of MRSA colonization should generally be done only when epidemiologically indicated (i.e., in an outbreak situation). However, the decision to decolonize patients or staff should be made on a case by case basis.

What can be done to prevent the spread of MRSA?

1. Educate the patient if possible about his/her condition.

2. Follow Standard Precautions faithfully. Keep draining lesions covered. Wash your hands before and after patient care.

3. In the long-term care setting, place patients in private rooms if available. If a private room is not available, consider cohorting two patients who have MRSA infections or placing the MRSA infected patient with a patient who has a low infection risk (e.g., is ambulatory and does not have open wounds, sores or invasive devices including lines or foley).

4. In the long-term care setting, consider scheduling staff consistently to the same patients. Consider using nursing cohorts to care for patients who have MRSA infections.

Where can I get more information?

- The Nursing director in long-term care facilities
- Your local health department listed in the telephone directory
- The Utah Department of Health, Bureau of Epidemiology, (801) 538-6191

SCABIES *Sarcoptes Scabiei*

What is scabies?

Scabies is a skin infestation caused by microscopic parasites called mites. The mites burrow under the skin creating small, raised areas. The burrows contain fluid. They resemble wavy lines and appear frequently on finger webs or on the wrists, elbows, breasts, belt line, thighs and abdomen. A rash may occur anywhere on the body, regardless of the area of infestation. Itching is intense, especially at night. In immunodeficient or senile patients, the normally severe itching may be reduced or absent. Secondary infections may occur in the skin from scratching. Scabies can affect persons from all socioeconomic levels without regard to age, race, or gender.

What is the incubation period?

Persons with no previous exposure begin itching after 2-6 weeks. Persons with prior exposure develop symptoms within 1-4 days.

How is scabies transmitted?

Scabies is transmitted by close personal contact (skin-to-skin) with an infested person. Transmission can occur (although less commonly) through contact with contaminated clothing, bedding or other articles. For this to happen, however, contact must occur shortly after the article was contaminated.

What is the communicable period?

Scabies is easily transmitted from the time of infestation until after mites and eggs are destroyed. Ordinarily this is within 24 hours after the first treatment and occasionally after 2 courses of treatment 1 week apart.

How is scabies diagnosed?

The diagnosis of scabies should be confirmed by a medical professional using skin scrapings or a biopsy of a burrow that has not been excessively scratched. Live mites, eggs and/or fecal pellets are identified by looking at the sample through a microscope.

How should scabies be treated?

Infested persons should be treated with a prescription product as soon as possible after diagnosis. The instructions on the medication should be followed exactly. The infested person should avoid social situations, including work or school, until 24 hours after the first treatment. Itching may persist for 1-2 weeks after treatment; this is normal and should not be taken as a sign of treatment failure. Household contacts of an infested person should be treated since they may have been exposed. Overtreating should be avoided because the medication can be toxic. Five percent permethrin (e.g. Elimite®) is the drug of choice for infants, toddlers, pregnant and lactating women.

Can I get scabies from my pet?

Mites from animals can live on humans but cannot reproduce on them. Man is the reservoir for scabies.

How should scabies be controlled?

After applying the treatment and waiting the specified time (according to the manufacturer's directions), the infested person should take a bath or shower.

If the infested person is in a long-term care facility or hospital, the patient should be confined to his/her room until 24 hours after the first treatment. Personnel caring for the patient should wear gowns and gloves for the first 24 hours after treatment. Laundry personnel should wear gowns and gloves when handling contaminated linens. Bedding, clothing, underclothes and linens should be laundered in hot water and heat dried. Recommendations vary, but personal items that are not easily washed and dried should be kept in a closed plastic bag for a minimum of 5 days.

In long-term care facilities, any rash on patients or staff should be considered scabies until proven otherwise. In some instances where facilities are experiencing an epidemic of scabies, mass treatment of patients, contacts and personnel may be indicated with treatment taking place on the same day. For isolated cases of scabies, selective treatment should be used. Asymptomatic staff or those without any signs or symptoms of infestation, who have provided direct-contact care for the infested patient should be treated, as well as close personal contacts of symptomatic patients those who have skin contact. Close personal contacts including family members of symptomatic employees should also be treated.

Where can I get more information?

For more information or to report an outbreak, please contact the Bureau of Epidemiology at (801) 538-6191 or your local health department.